CLAIMS

1. A composite semipermeable membrane comprising a polysulfone porous support membrane and a polyamide ultrathin layer formed on one of the surfaces of the porous support membrane, the composite membrane having the characteristic that in the infrared absorption spectrum obtained from the surface of the polyamide ultrathin layer of the composite semipermeable membrane, the ratio T (=Aa/As) of absorption intensity Aa at the absorption peak revealing C=O of polyamide in the region of 1600-1700 cm^{-1} to absorption intensity As at the absorption peak revealing polysulfone at a wavenumber around 1586 cm^{-1} is at least 0.05 and not higher than 3.

2. The composite semipermeable membrane according to claim 1 wherein the ratio T (=Aa/As) is at least 0.1 and not higher than 1.5.

3. The composite semipermeable membrane according to claim 1 wherein the polyamide comprises a crosslinked polyamide.

4. The composite semipermeable membrane according to claim 1 wherein the polyamide comprises a crosslinked polypiperazineamide.

5. The composite semipermeable membrane according to claim 1 whose sucrose removal is 92% or more and whose water permeability is 0.2 $m^3/m^2/day$ or more.

with respect to 0.1 wt.% aqueous sucrose solution, under an operating pressure of 0.3 MPa at a temperature of 25℃ and at pH of 6.5.

6. The composite semipermeable membrane according to claim 1 which is in the form of a hollow fiber membrane.

7. The composite semipermeable membrane according to claim 6 wherein the polyamide ultrathin layer is formed on the outer surface of the hollow fiber membrane.

8. A process for producing a composite semipermeable membrane as set forth in claim 1, comprising forming a polyamide ultrathin layer on one of the surfaces of a polysulfone porous support membrane by carrying out an interfacial polycondensation reaction between at least one multifunctional amine and at least one multifunctional acid halide on one of the surfaces of a polysulfone porous support membrane.

9. The process according to claim 8 wherein the interfacial polycondensation reaction is carried out by:
(i) bringing the polysulfone porous support membrane into contact with a controlled concentration of a multifunctional amine solution; and
(ii) bringing the membrane into contact with a controlled concentration of a multifunctional acid halide solution.

10. The process according to claim 8 wherein the composite semipermeable membrane is in the form of a hollow fiber membrane.

11. The process according to claim 9 wherein the concentration ratio of the multifunctional amine to the multifunctional acid halide is 20:1 to 0.1:1.